CLAIMS

1. An apparatus for fluorescence observation comprising an excitation filter which transmits only exciting light of an specific wavelength among illumination light, and an absorption filter which blocks the exciting light and transmits only fluorescence generated from a specimen when the exciting light is irradiated to the specimen, wherein an interval of a half-value wavelength at a long-wavelength side of the excitation filter and a half-value wavelength at a short-wavelength side of the absorption filter is in a width between 1nm to 6nm, and change of the half-value wavelength of the excitation filter and the absorption filter when humidity changes from 10% to 95%, is 0.5nm or less.

2. The apparatus for fluorescence observation according to claim 1, wherein the excitation filter and/or the absorption filter contain multilayer film having 90 or more layers.

3. The apparatus for fluorescence observation according to claim 1 or 2, wherein the excitation filter and the absorption filter contain a multilayer film consisting of SiO_2 which is a low refractive index film, and Ta_2O_5, Nb_2O_5 or TiO_2, or a mixed film composed of mixture of any of these, each of which is a high refractive index film.

4. The apparatus for fluorescence observation according to one of claims 1 to 3, wherein the apparatus is incorporated in an optical system of a microscope.

5. The apparatus for fluorescence observation according to one of claims 1 to 3, wherein the apparatus is incorporated in an optical system of an

endoscope.

6. An apparatus for fluorescence observation comprising laser light used as exciting light, and an absorption filter which blocks the exciting light and transmits only the fluorescence generated from a specimen when the exciting light is irradiated to the specimen, wherein the absorption filter contains multilayer film having 90 or more layers, and an interval of a wavelength of the laser light and a half-value wavelength at a short-wavelength side of the absorption filter is within a width between 1nm to 12nm.

7. The apparatus for fluorescence observation according to claim 6, wherein an interval of the wavelength of the laser light and a half-value wavelength at a short-wavelength side of the absorption filter is within a width between 6nm to12nm.

8. The apparatus for fluorescence observation according to claim 6 or 7, wherein change of the half-value wavelength of the absorption filter when humidity changes from 10% to 95%, is 0.5nm or less.

9. The apparatus for fluorescence observation according to one of claims 6 to 8, wherein the absorption filter contains multilayer film having 90 or more layers.

10. The apparatus for fluorescence observation according to one of claims 6 to 9, wherein a multilayer in which films are alternately laminated composing of the absorption filter, is constructed such that a low refractive index film which is SiO_2, and a high refractive index film which is Ta_2O_5, Nb_2O_5, or TiO_2, or a mixed film of any of these, and the absorption filter contains the multilayer in which films are alternately laminated at least one

of surfaces.

11. The apparatus for fluorescence observation according to one of claims 1 to 5, wherein the excitation filter comprises, at least a long wave pass filter, a short wave pass filter, and two or more substrates, and the long wave pass filter and the short wave pass filter are formed as a film on different substrates mentioned above, respectively.

12. An apparatus for fluorescence observation comprising an excitation filter which transmits only exciting light of specific wavelength out of illumination light, and an absorption filter which transmits only fluorescence generated from the specimen and blocks the exciting light when the exciting light is illuminated on the specimen, wherein the excitation filter and the absorption filter are constructed so as to have such characteristic that an interval between a half-value wavelength at a long-wavelength side of the excitation filter and a half-value wavelength at a short-wavelength side of the absorption filter is within a width between 1 to 6nm, and an interval between a half-value wavelength at the long-wavelength side of the excitation filter having transmittance 0.1% and a half-value wavelength at the short-wavelength side of the excitation filter is within a width between 0.1 to 5.9nm, and an interval between a wavelength at the short-wavelength side of the absorption filter having transmittance 0.1% and a half-value wavelength at the short-wavelength side of the absorption filter is in a width between 0.1 to 5.9nm, and an interval between a half-value wavelength at the long-wavelength side of the excitation filter having transmittance 80% and a wavelength at the long-wavelength side of the excitation filter is 5.9nm or less, and an interval between a half-value wavelength at the short-wavelength side of the absorption filter and a wavelength at the short-wavelength side of the absorption filter having

transmittance 80% is 5.9nm or less.

13. The apparatus for fluorescence observation according to claim 12, wherein change of the half-value wavelength of the excitation filter and the absorption filter when humidity changes from 10% to 95%, is 0.5nm or less.

14. The apparatus for fluorescence observation according to claim 12 or 13, wherein the excitation filter and/or the absorption filter have multilayer film having 90 or more layers.

15. The apparatus for fluorescence observation according to one of claim 12 to 14, wherein a multilayer in which films are alternately laminated composing of the excitation filter and the absorption filter, is constructed such that a low refractive index film which is SiO_2, and a high refractive index film which is Ta_2O_5, Nb_2O_5, or TiO_2, or a mixed film of any of these, and the excitation filter and the absorption filter comprise the multilayer in which films are alternately laminated, at least in one of surfaces.

16. The apparatus for fluorescence observation according to one of claims 12 to 15, wherein the apparatus is incorporated in an optical system of a microscope.

17. The apparatus for fluorescence observation according to one of claims 12 to 15, wherein the apparatus is incorporated in an optical system of an endoscope.